

Act Green

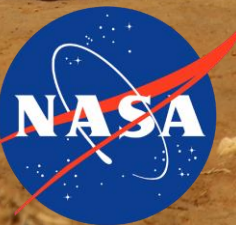
A near-real time integrated mapping and reporting system for re-wilding efforts:
extending a model from tigers (*Panthera tigris*) to lions (*Panthera leo*), jaguars
(*Panthera onca*), and American bison (*Bison bison*)



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Wildlife Conservation Society



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Ecological Forecasting





Before I tell you more...

would like to thank a wonderful team of innovators



Dr. Eric
Sanderson

Wildlife
Conservation
Society
(now NYBG)



Kim Fisher

Wildlife
Conservation
Society



Dustin
Sampson

Sparkgeo



Nathaniel
Robinson

Panthera
(now TNC)



Lucinda Royte

Wildlife
Conservation
Society
(now NYBG)

who developed applications that will ensure Act Green succeeds

applications funded through NASA grants (in the last 6 years)

- [the Human Footprint index](http://wcshumanfootprint.org) (wcshumanfootprint.org)
- [the Tiger Conservation Landscape](http://act-green.org) (act-green.org)



Act Green

**A near-real time integrated mapping and reporting system for re-wilding efforts:
extending a model from tigers (*Panthera tigris*) to lions (*Panthera leo*), jaguars
(*Panthera onca*), and American bison (*Bison bison*)**

Act Green application

will help end-users

- allocate time and effort
- identify and quantify opportunities for reintroduction efforts
- identify study locations to understand species effects on ecosystem functions/services
- document success or failure

Primary end-users

is a consortium of leading international organizations

- the International Union for Conservation of Nature (IUCN)
- Panthera
- Wildlife Conservation Society (WCS)
- World Wildlife Fund (WWF)

Analytical steps

Indigenous range map – defines area of interest (AOI)

Time frame of the analysis – defines length of time series

Structural habitat

- What defines habitat?
- What remotely sensed / other inputs can be used to make those maps?

Effective potential habitat

- How are human beings interacting with the species?
- Where are the human beings?

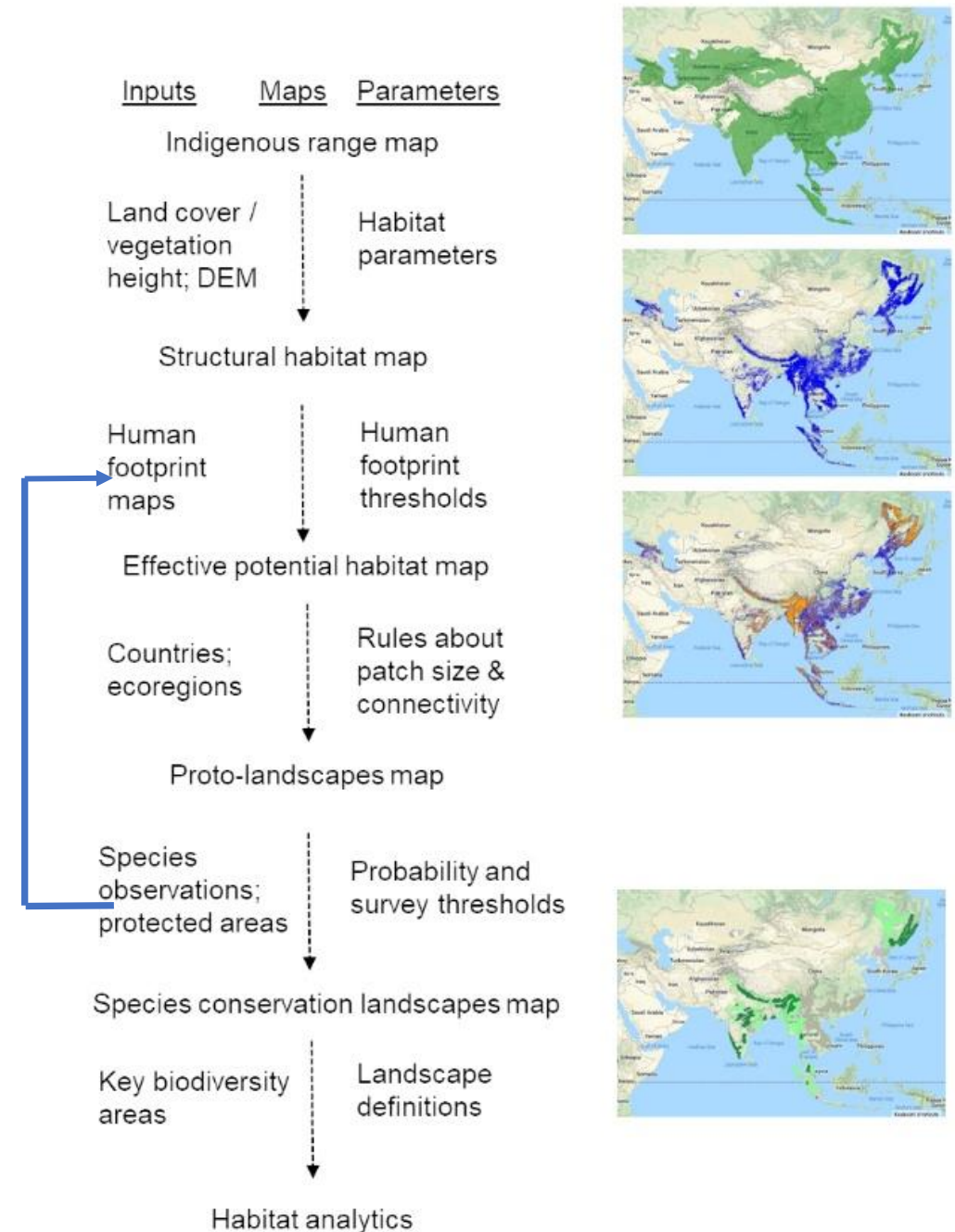
Patch size and connectivity

- What is a minimum patch size to be relevant to this species?
- What distances can be so easily crossed for two patches to be considered connected?

Species observations

- Where and when was the species surveyed?
- Where was it observed?

Figure 1. Schematic diagram of the species conservation landscape process.

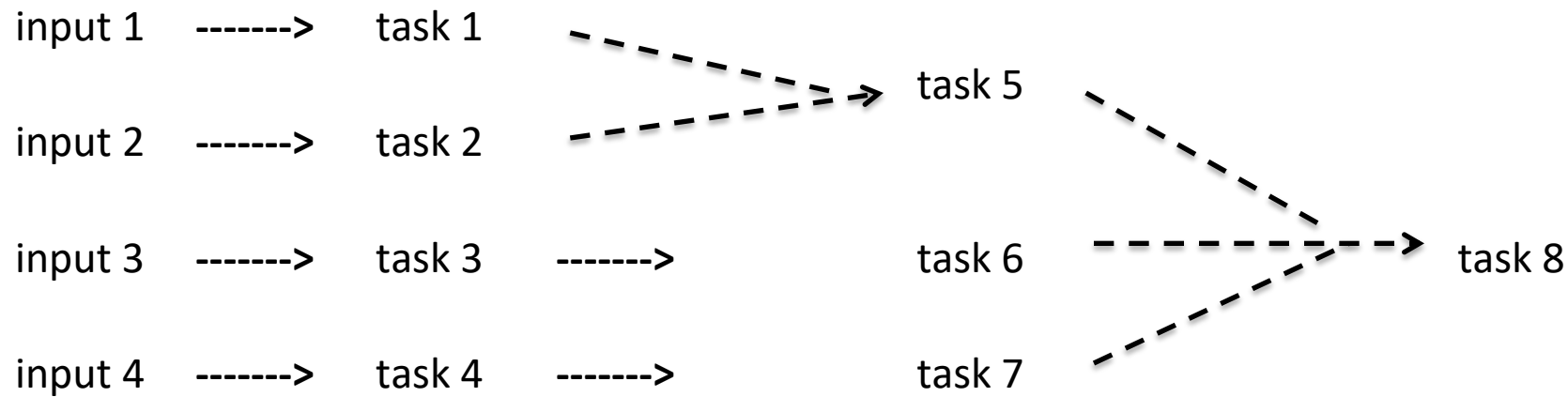




Google Earth Engine

SCL

more than a species map



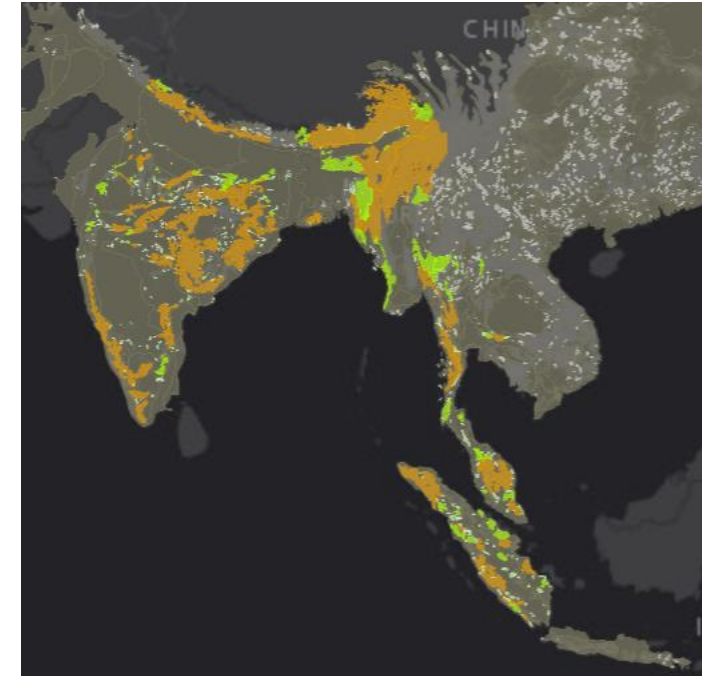
etc.

well-defined inputs

well-defined system

well-defined platform

well-defined outputs



- SCL can be extended to any species of interest
- can run the system any time whenever the inputs change
- the open architecture allows the end-users to customize based on their needs



TIGER CONSERVATION LANDSCAPES

Where do tigers live? And how are their habitats changing? Here we show maps and data from new 20-year analysis of tiger conservation landscapes at range-wide, national, and landscape scales using the [Google Earth Engine](#) and satellite imagery from [NASA](#) and the [European Space Agency](#). Tiger conservation landscapes are large blocks of habitat with low [human footprint](#) suitable for tigers. We recognize three main types: species landscapes, where tigers have been known to live during the previous five years; survey landscapes, where the status of tigers is uncertain; and restoration landscapes, where tigers have been extirpated. We also map fragments of habitat where tigers are found (species fragments), status uncertain (survey fragments), and have disappeared (restoration fragments) each year from 2001 — 2020. As new data becomes available, we will update the results on the website.

GO TO MAP

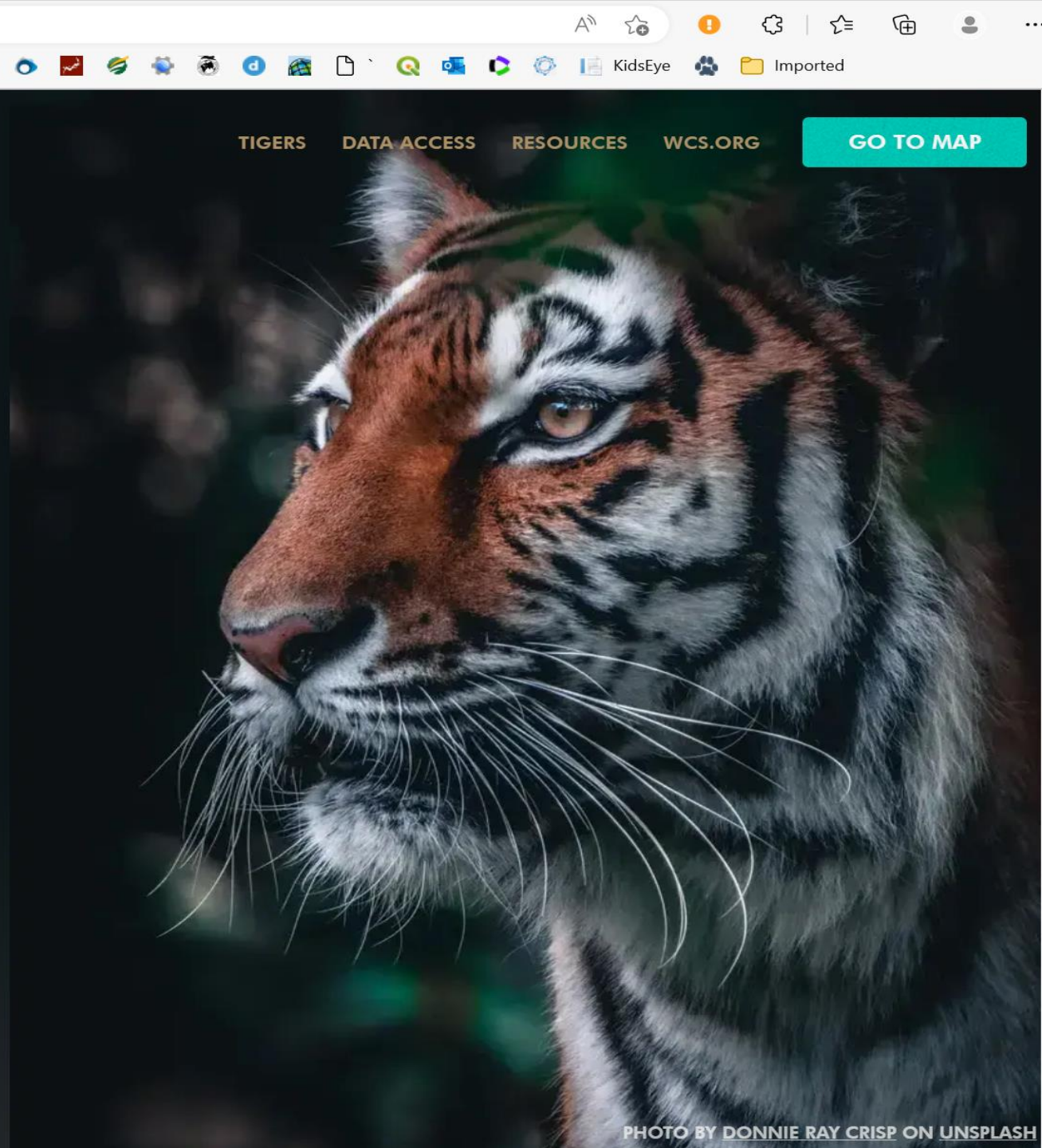
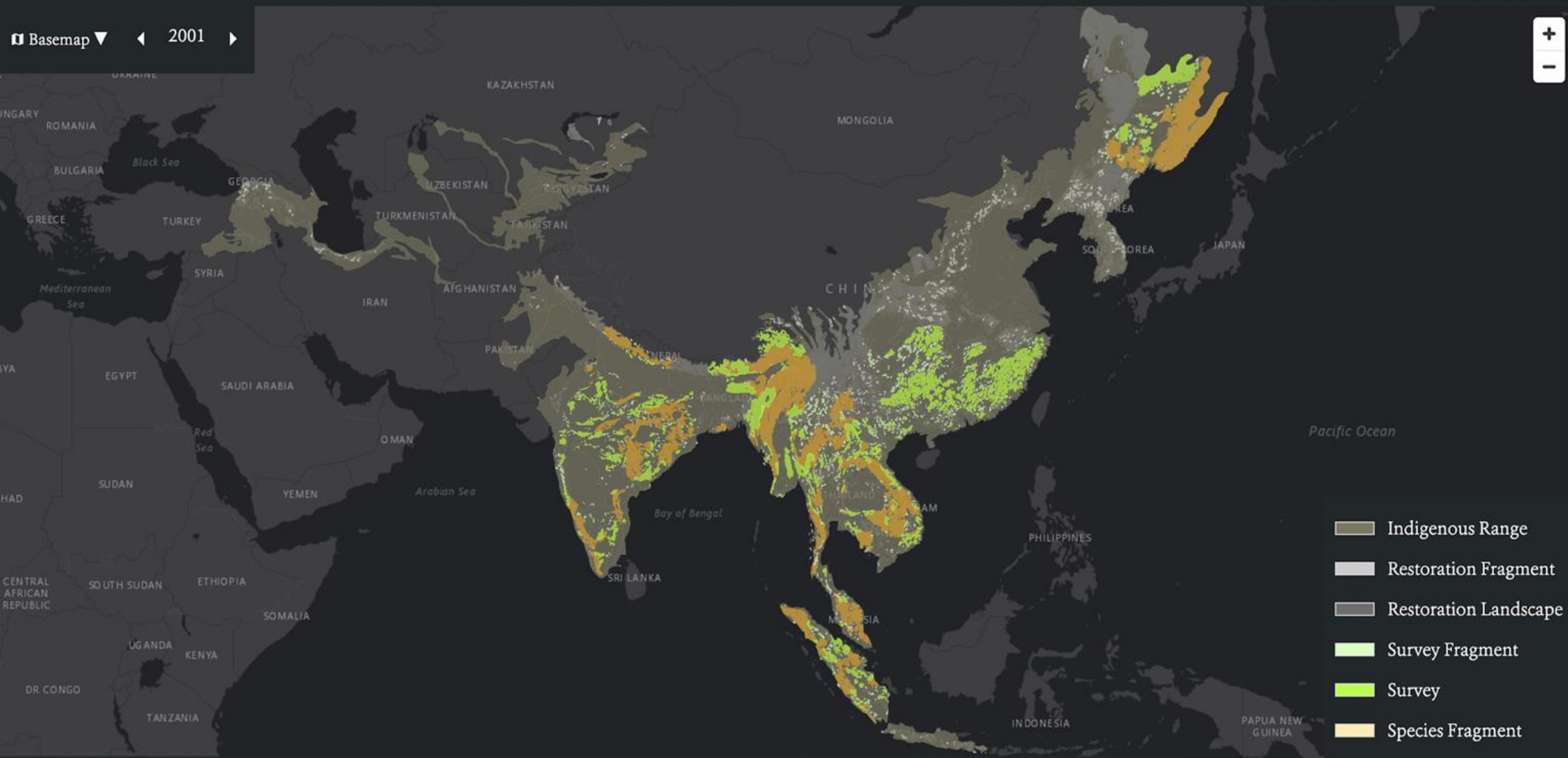


PHOTO BY [DONNIE RAY CRISP](#) ON [UNSPASH](#)

Basemap ▼ 2001 ▶

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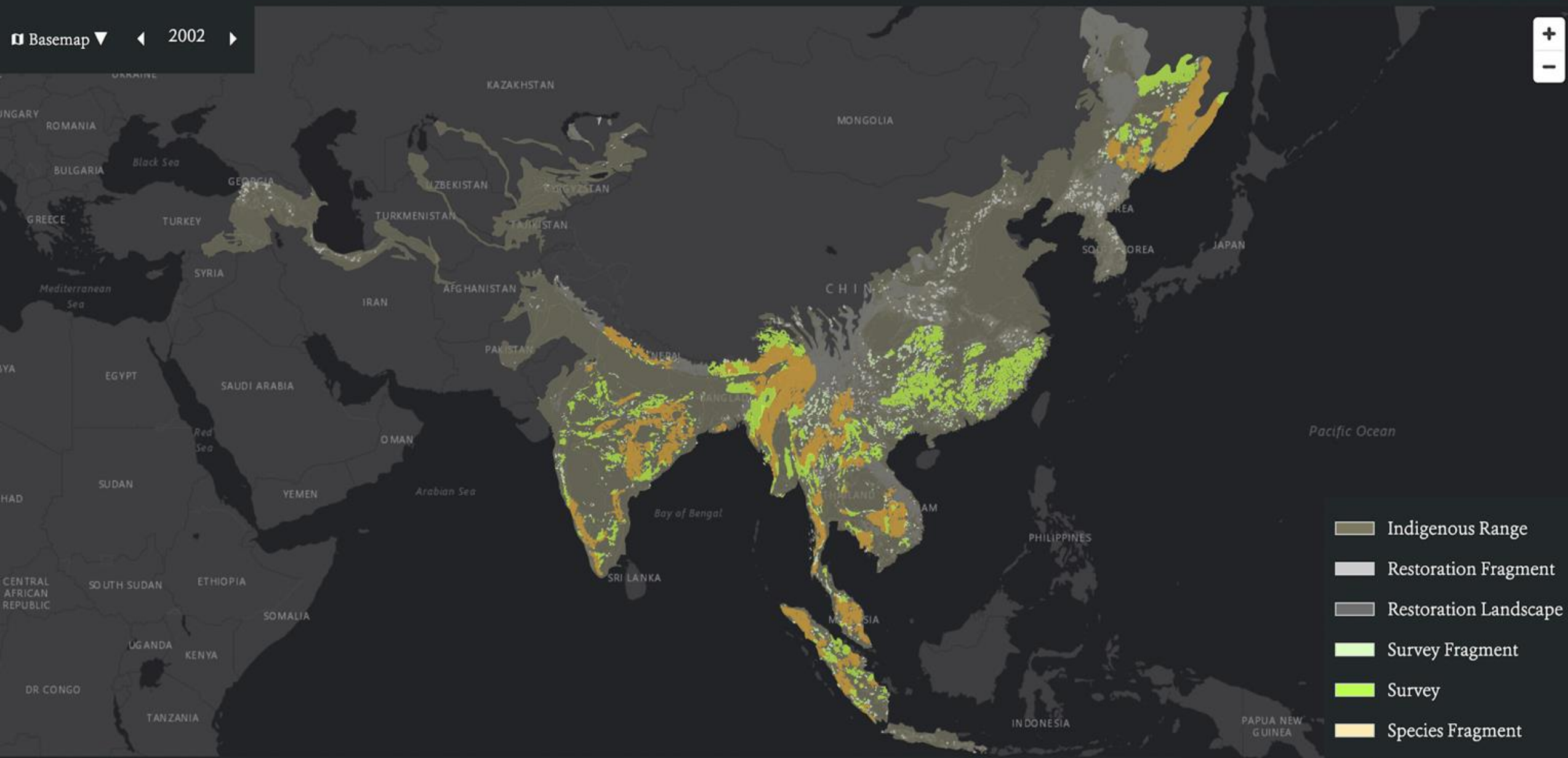
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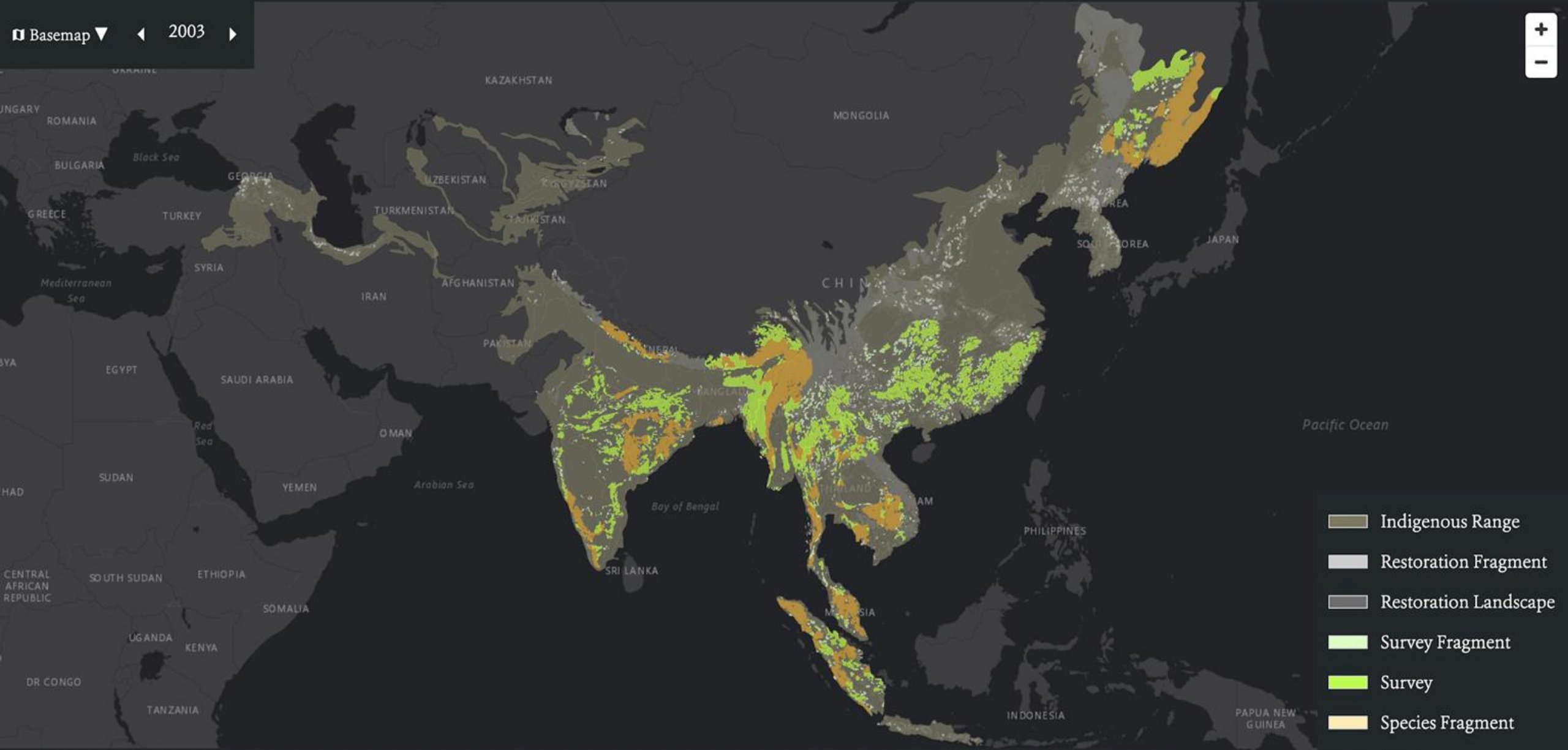
Basemap ▼ 2002 ▶

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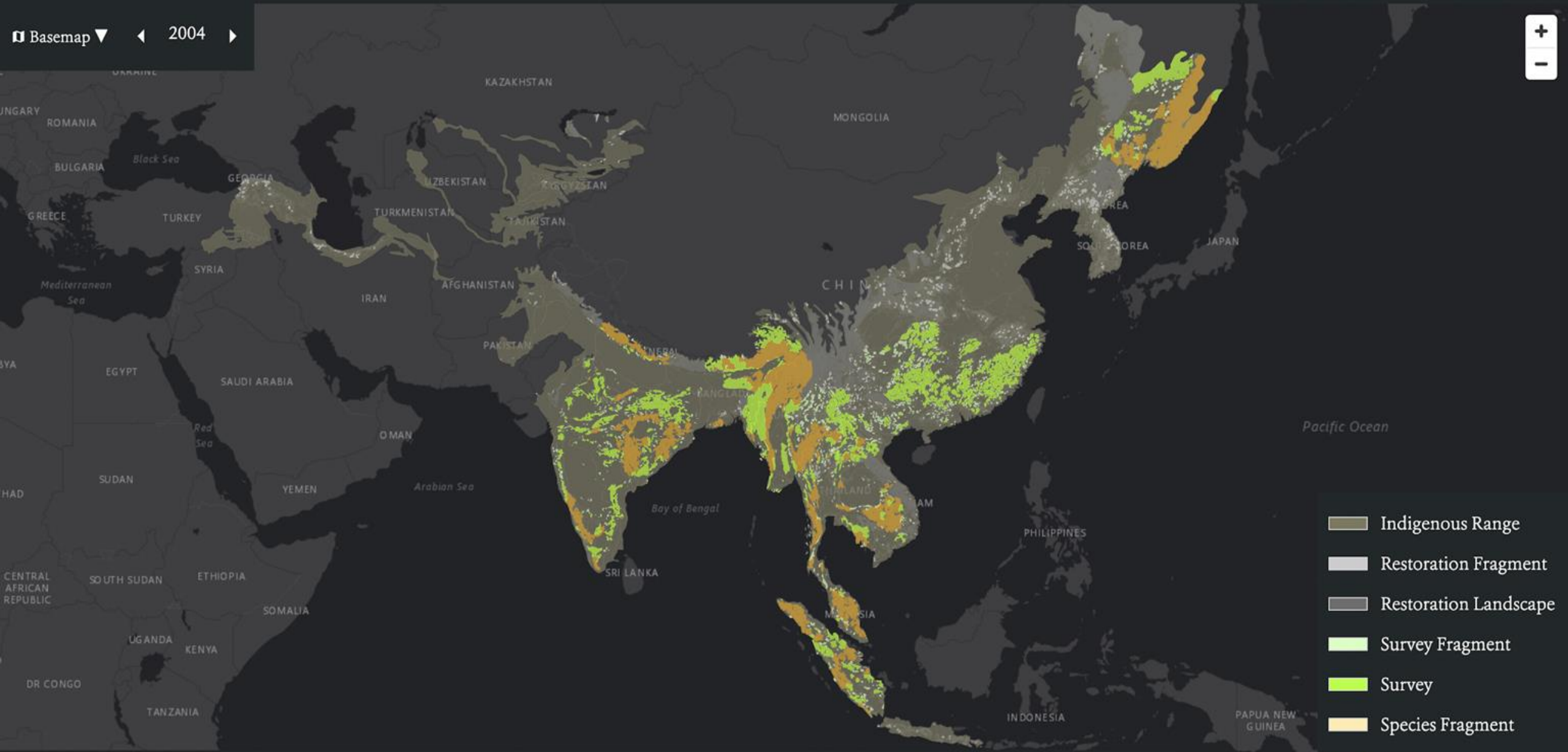
Basemap ▼ 2003 ▶



-  Indigenous Range
-  Restoration Fragment
-  Restoration Landscape
-  Survey Fragment
-  Survey
-  Species Fragment
-  Species

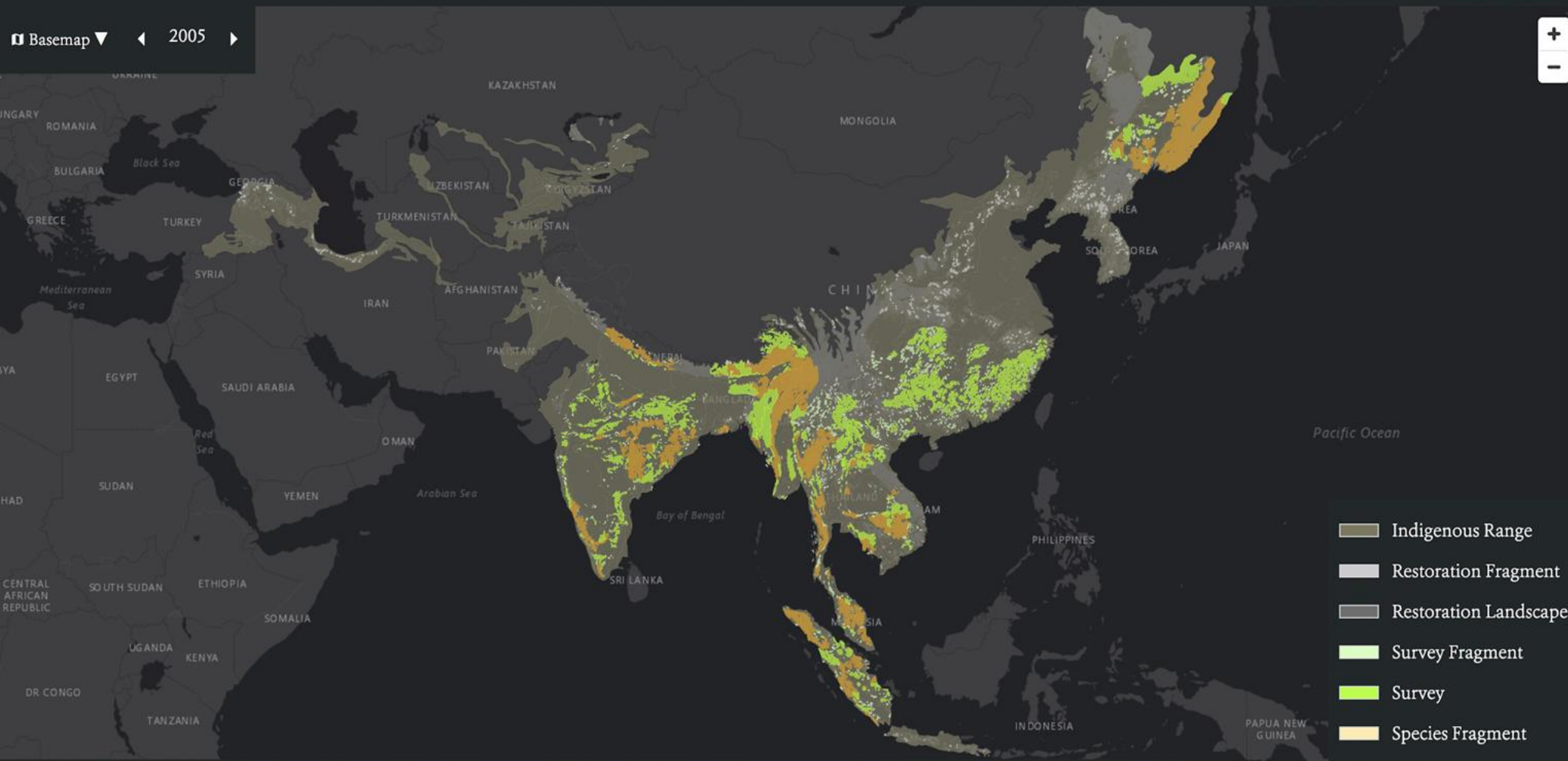
 Basemap ▼  2004 



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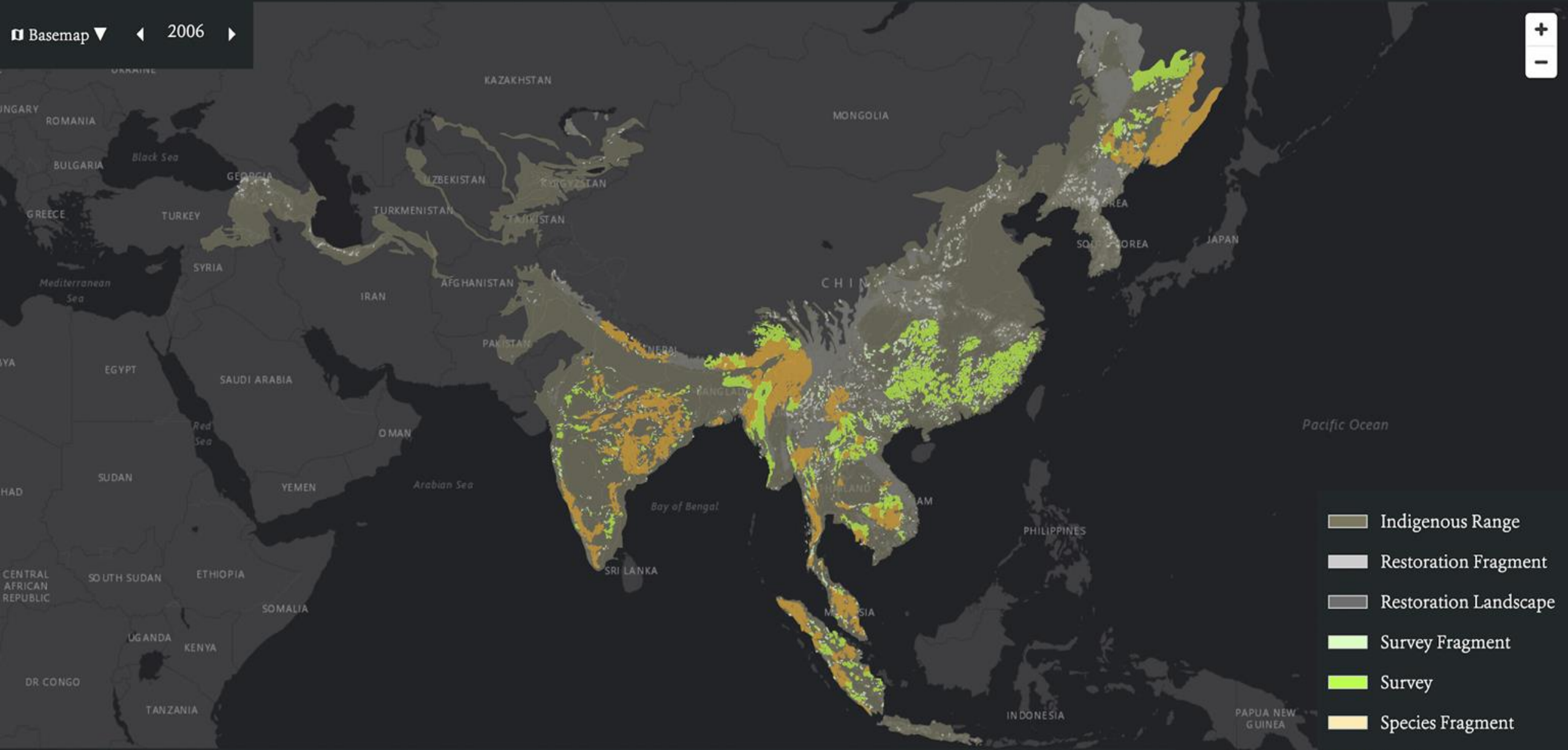
Basemap ▼ 2005 ▶



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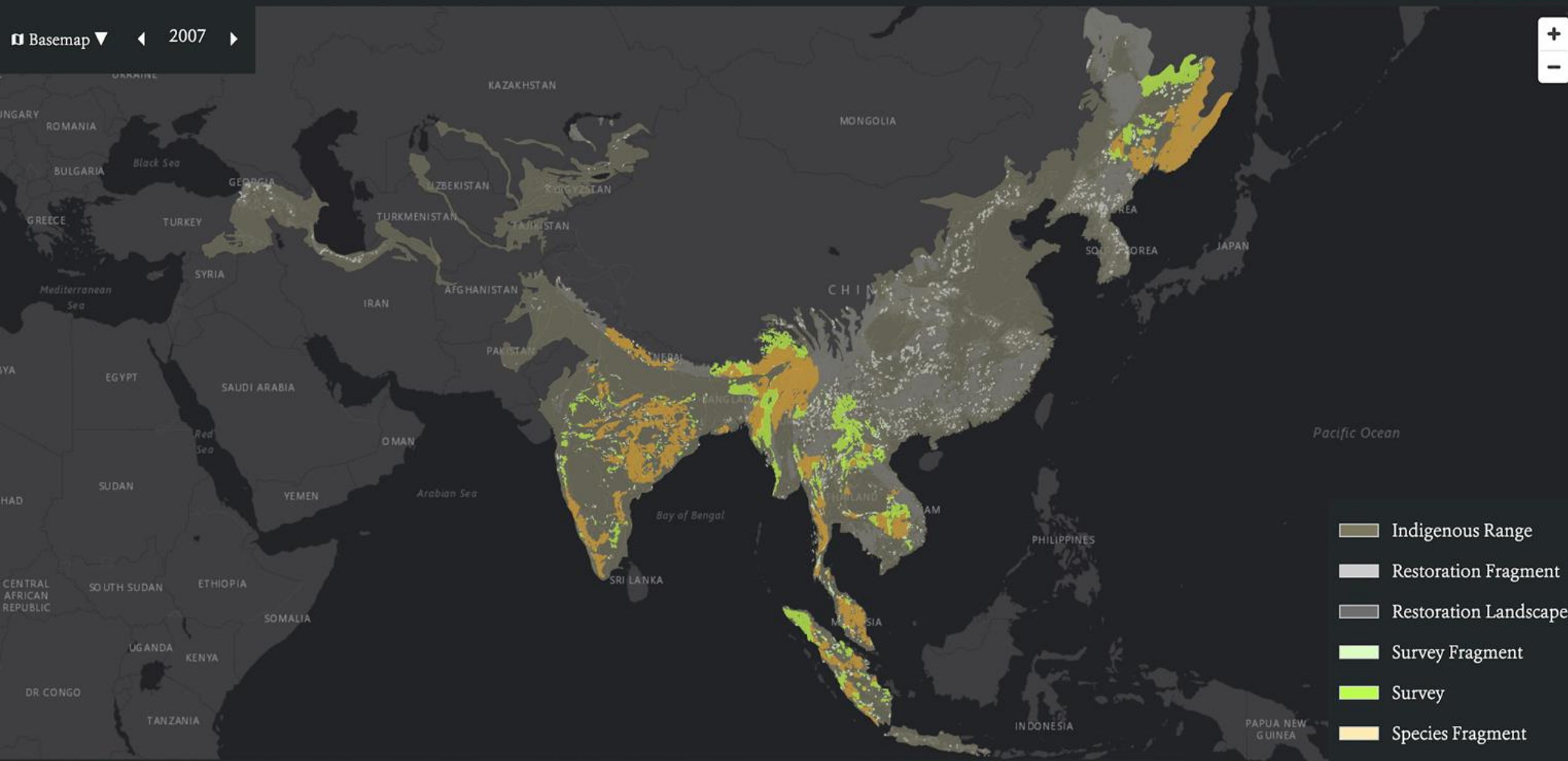
 Basemap ▼  2006 



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Basemap ▼ 2007 ▶

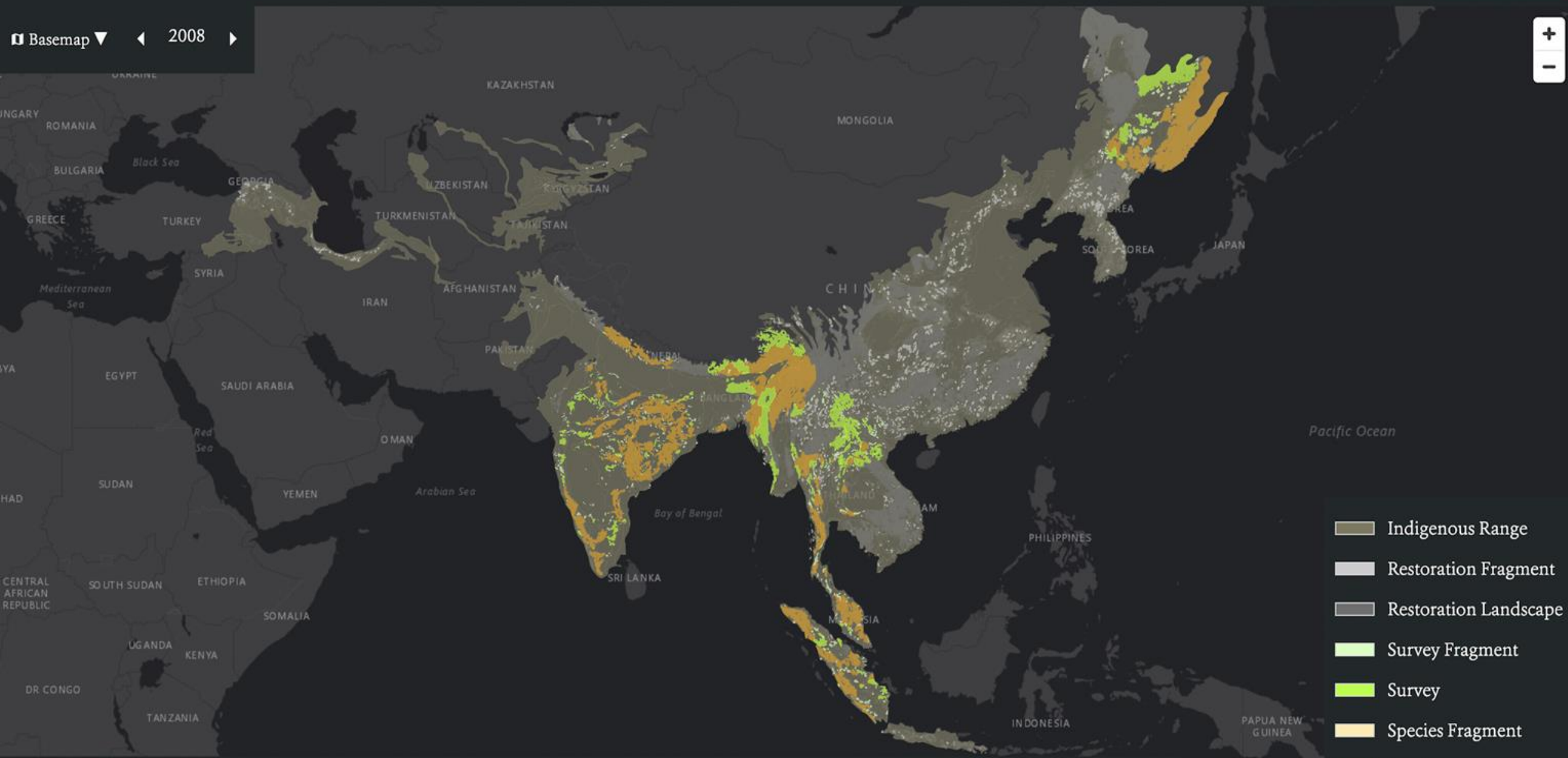


- Indigenous Range
- Restoration Fragment
- Restoration Landscape
- Survey Fragment
- Survey
- Species Fragment
- Species

Basemap ▼ 2008 ▶

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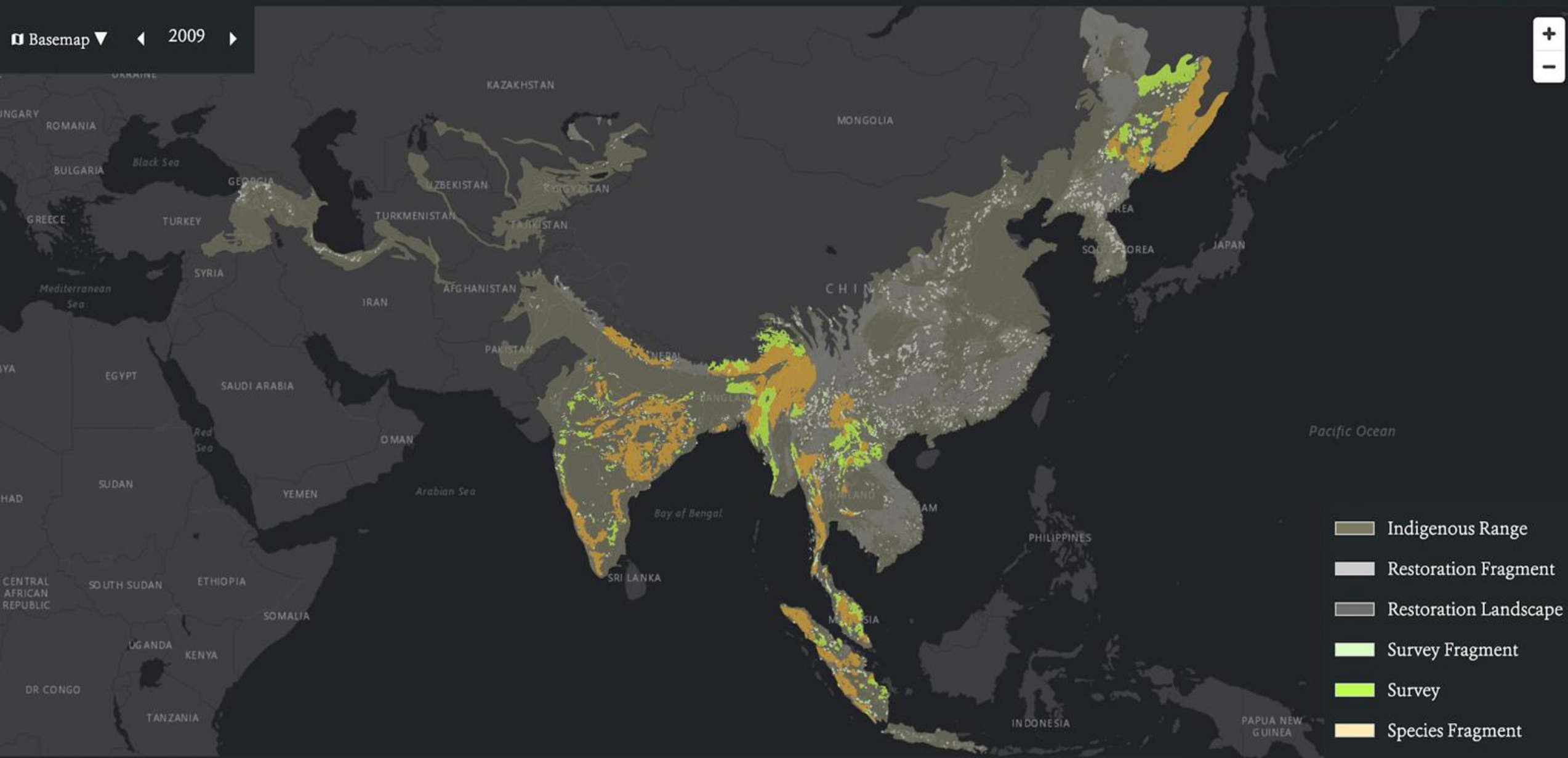


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Basemap ▼ 2009 ▶

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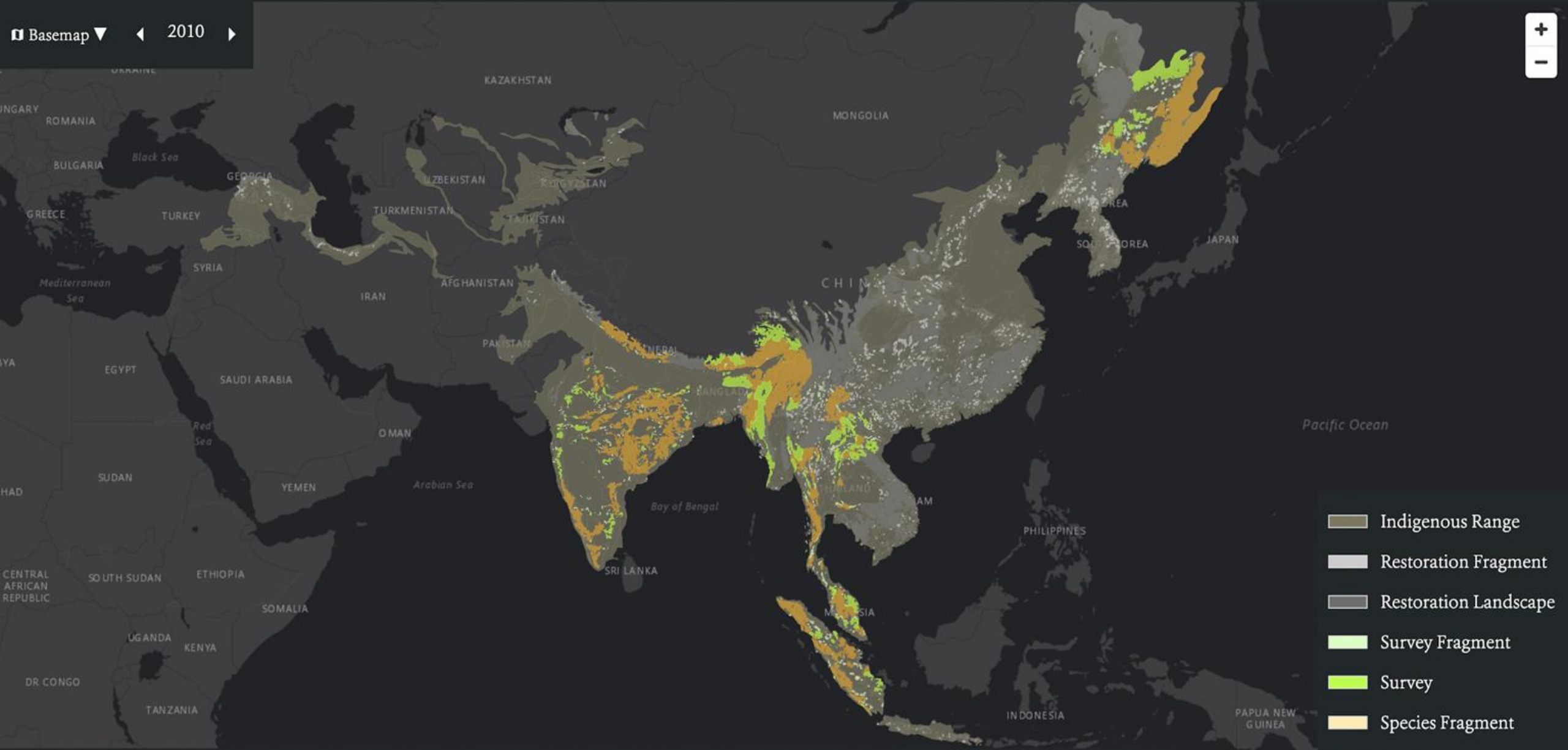


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-  Species

Basemap ▼ 2010 ▶

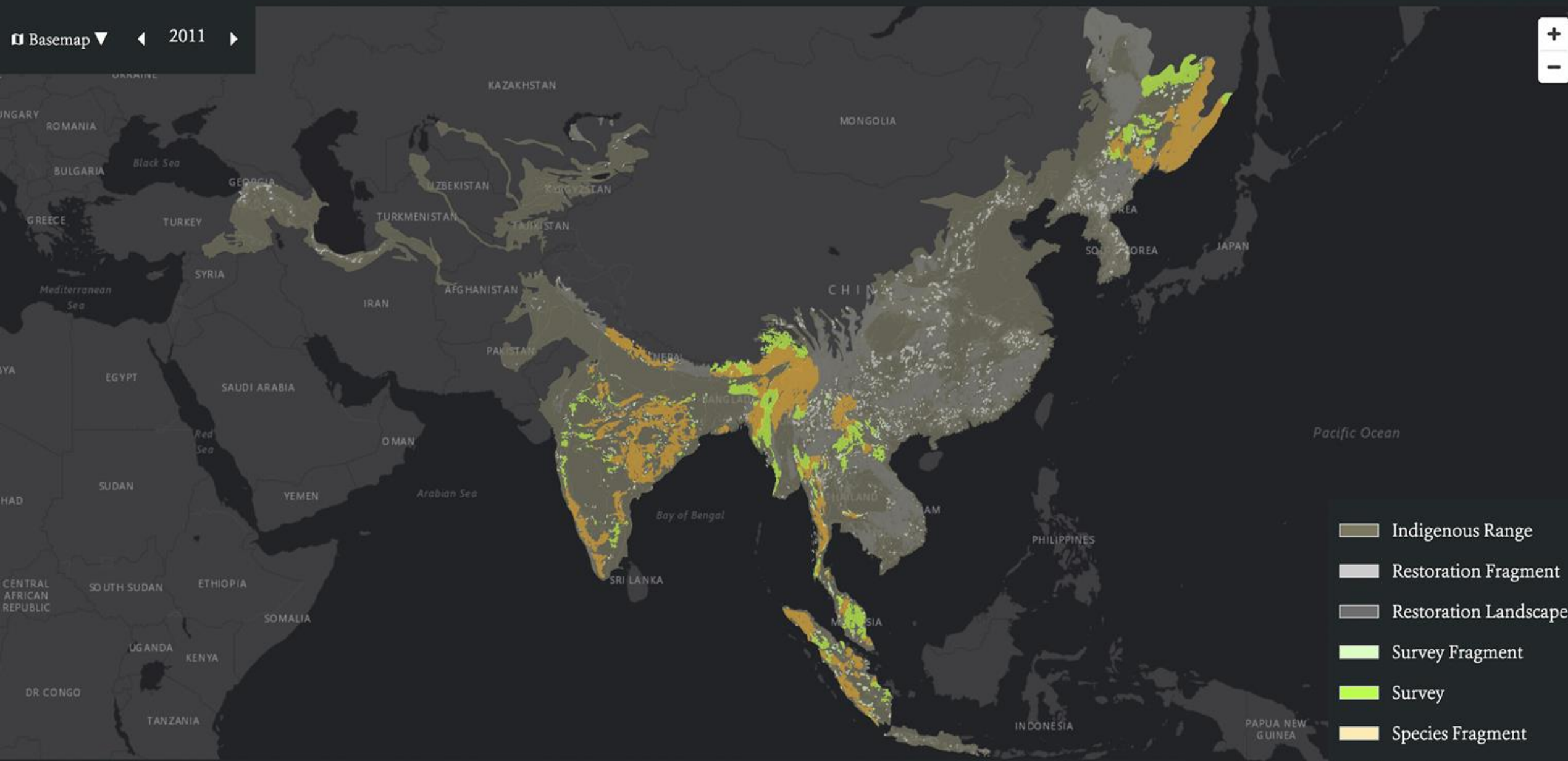
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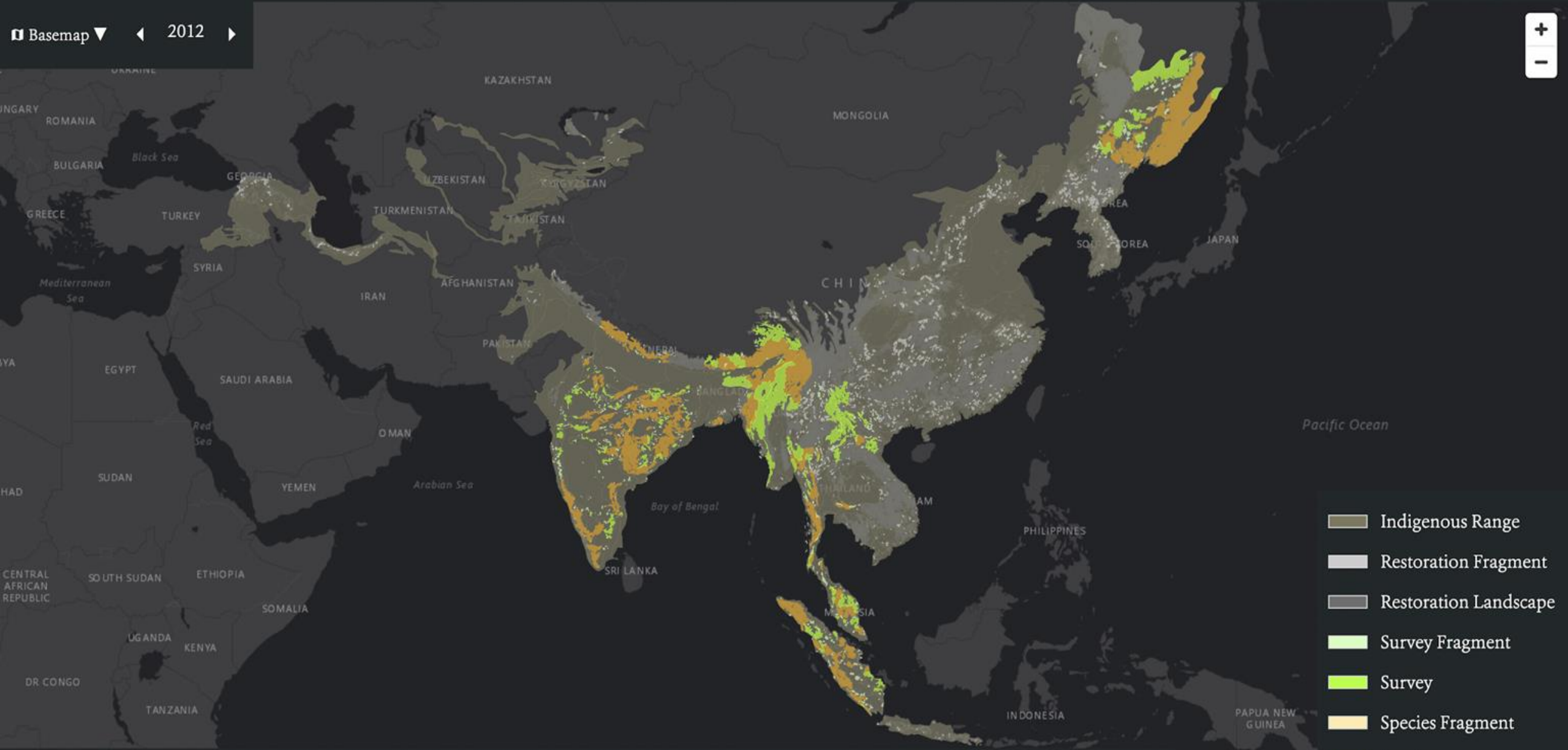
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Basemap ▼ 2011 ▶



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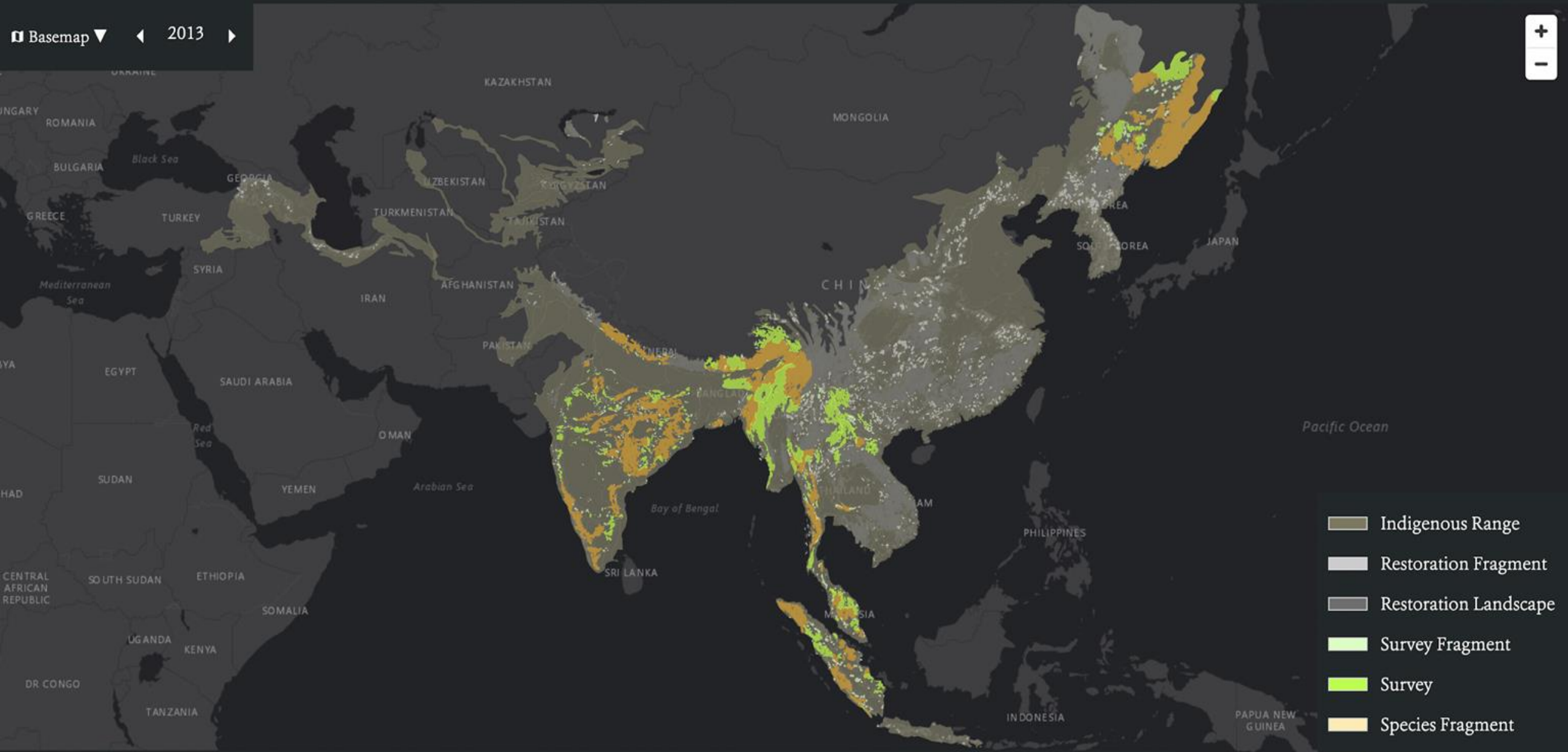
Basemap ▼ 2012 ▶



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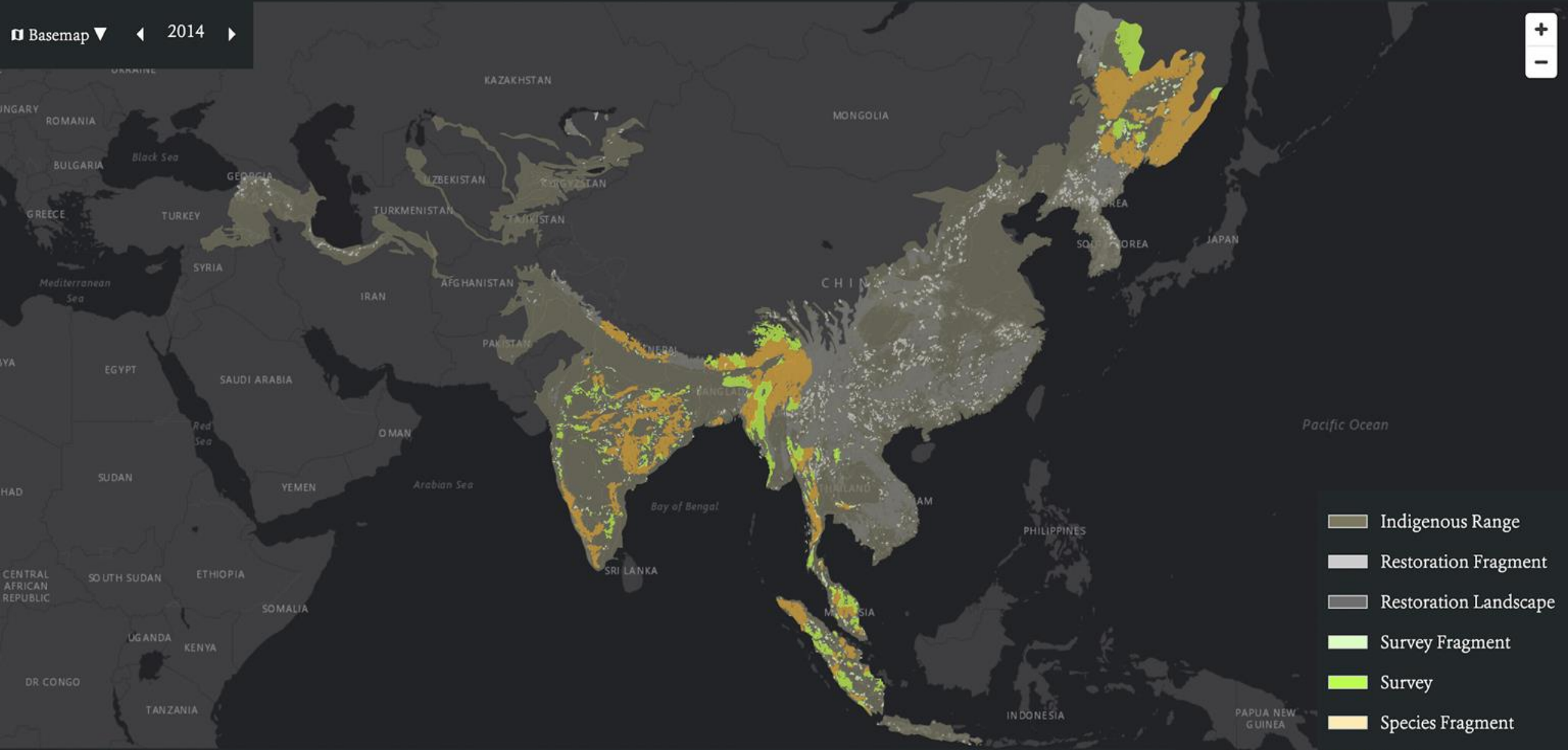
 Basemap ▼ ◀ 2013 ▶

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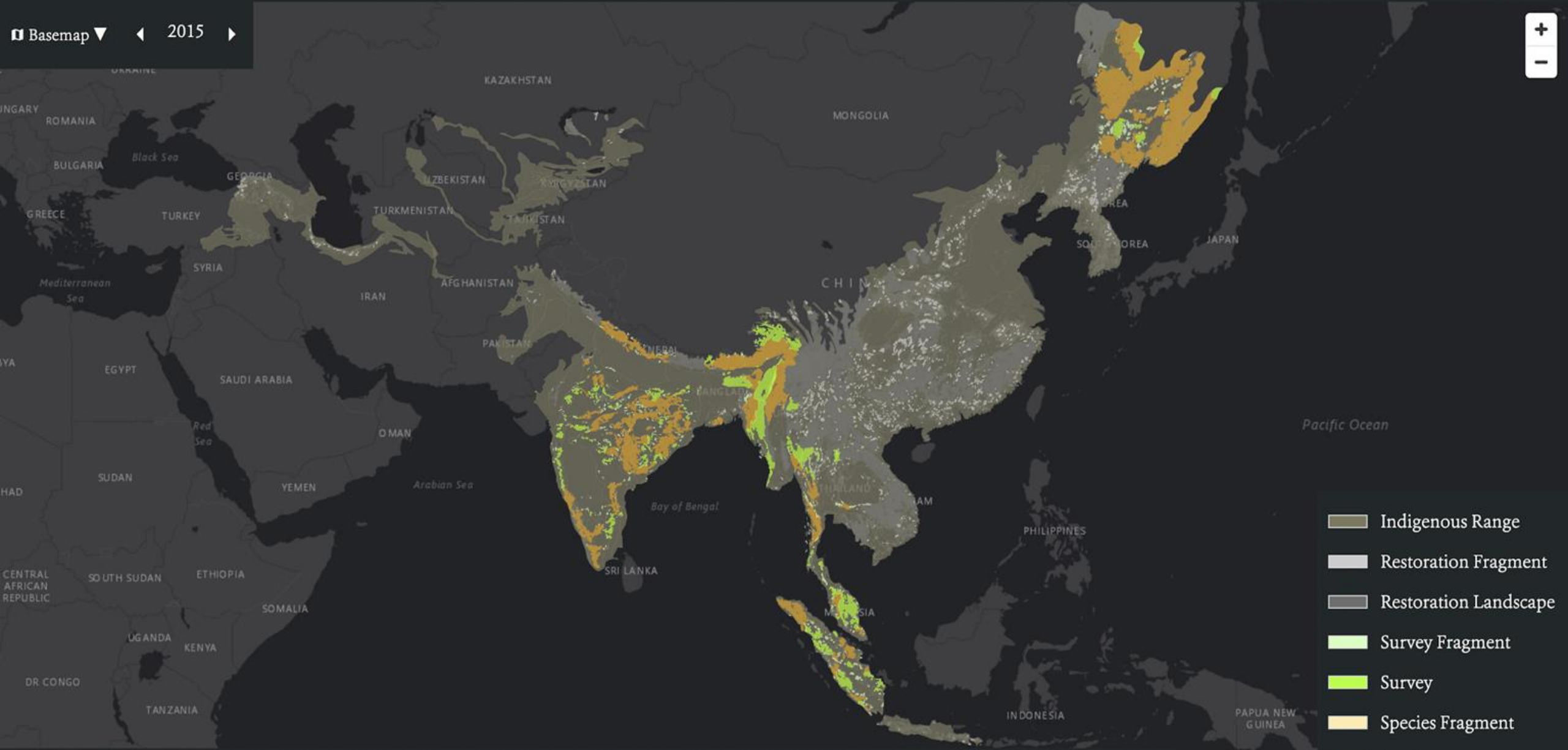
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Basemap ▼ 2014 ▶



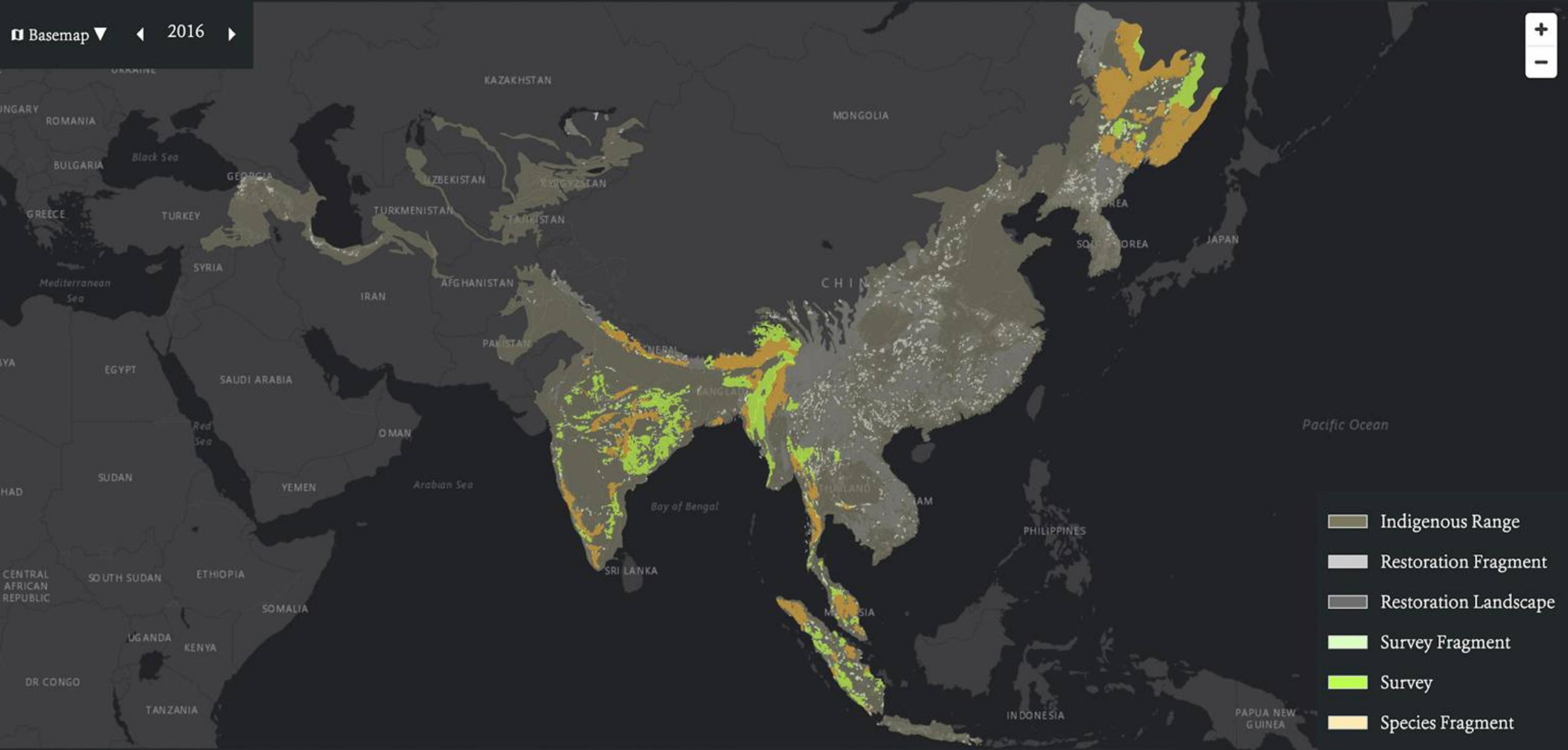
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Basemap ▼ 2015 ▶



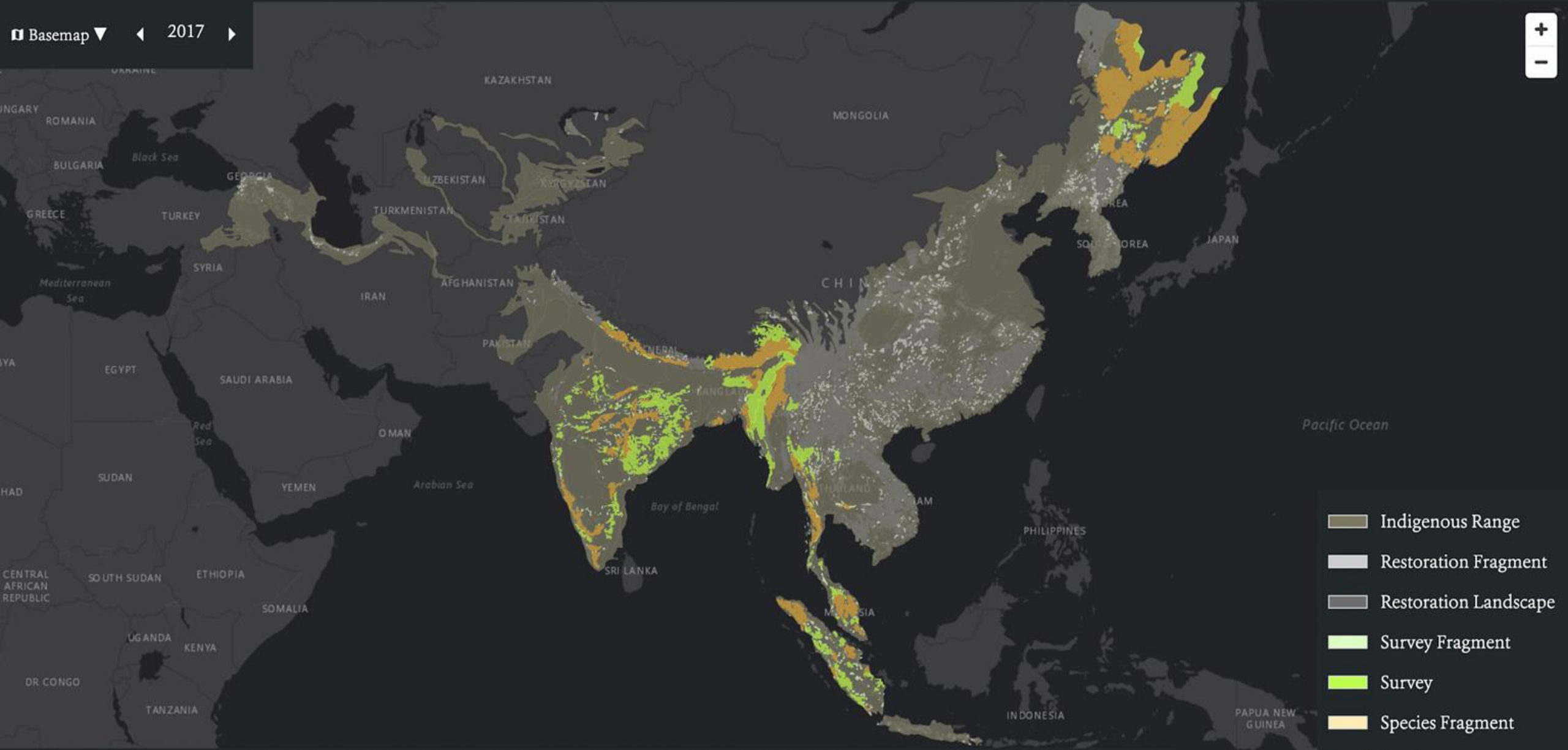
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Basemap ▼ 2016 ▶



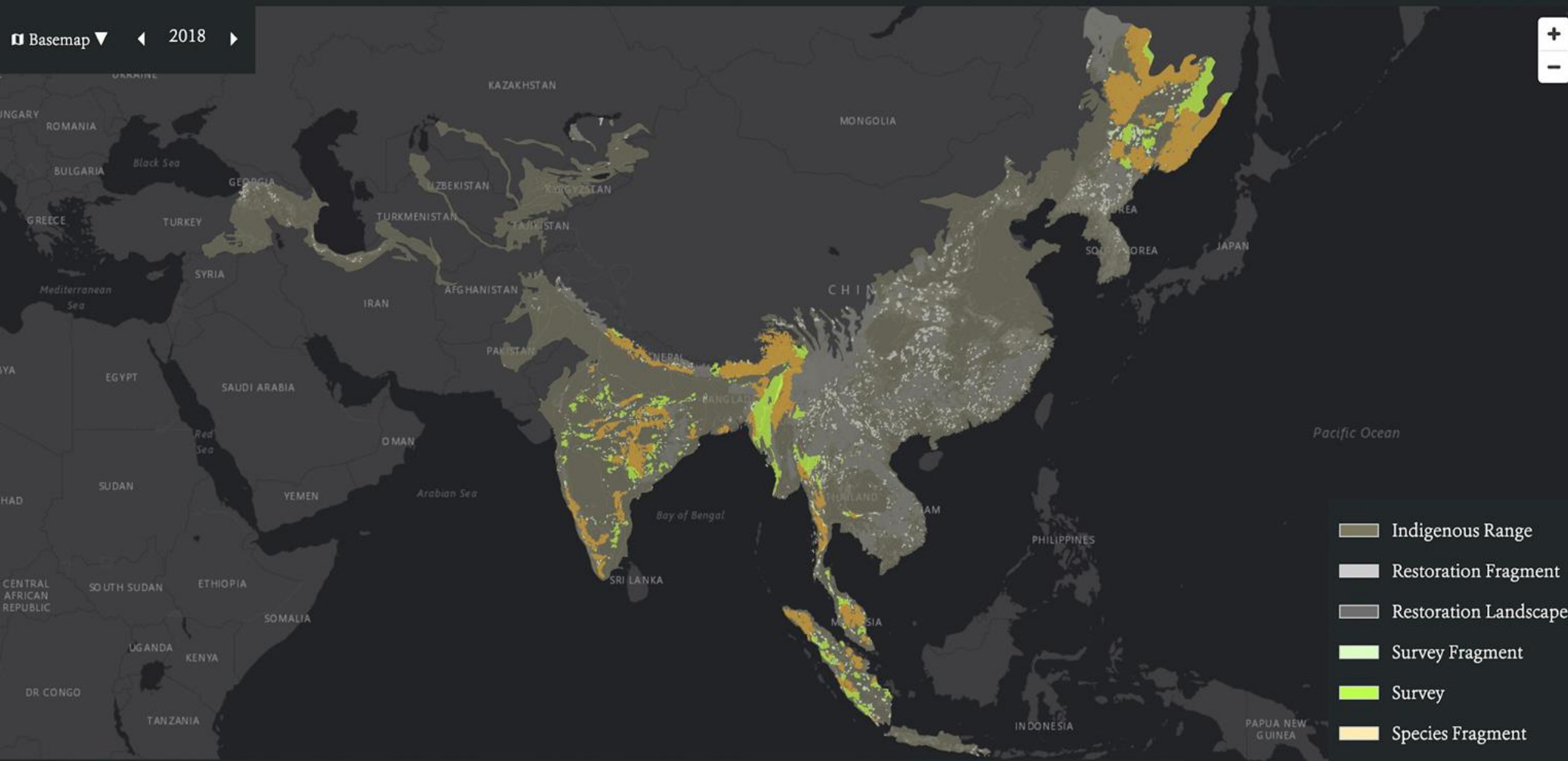
 Basemap ▼  2017 



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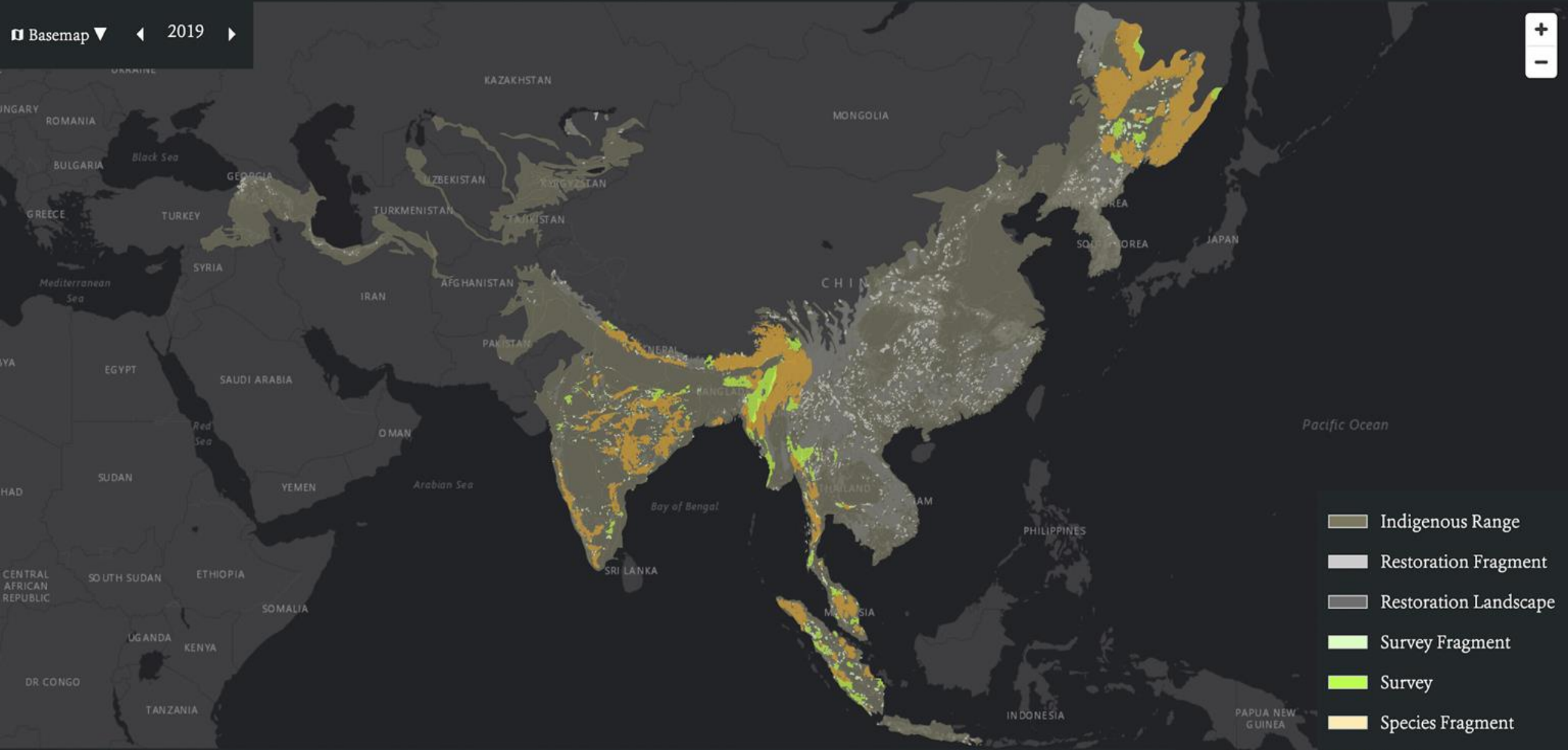
Basemap ▼ 2018 ▶



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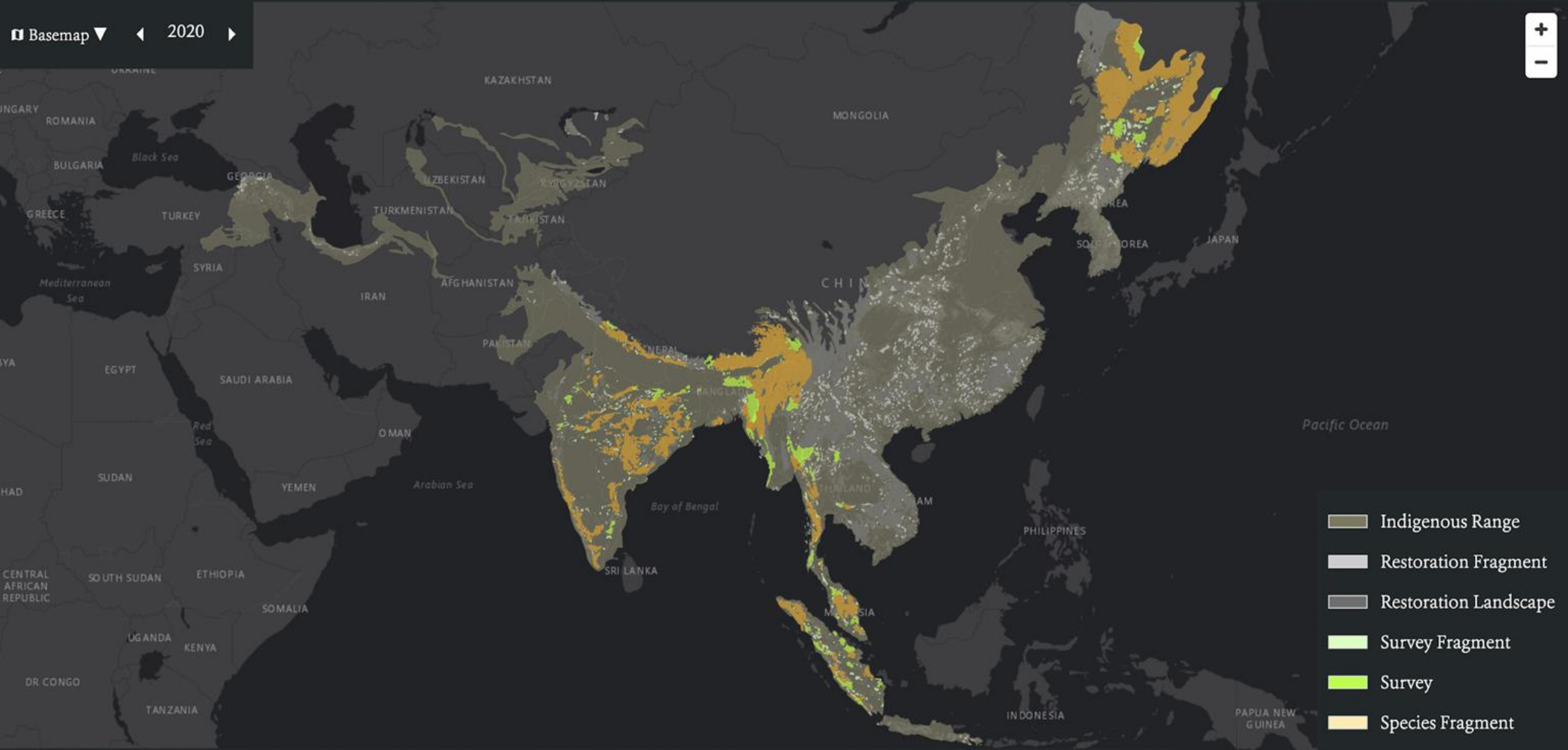
 Basemap ▾ ◀ 2019 ▶

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-  Indigenous Range
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Basemap ▼ 2020 ▶



-  Indigenous Range
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-  Survey
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-  Species